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MAGNETIC DISK DEVICE FAULT REPORTING METHOD

[磁気デイスク装置障害通報方式]

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(54) Specification

1. [Title of the invention]

Magnetic disk device fault reporting method

(57) [Purpose]

This method checks the error frequency generated by the magnetic disk device and in advance prevents the data loss by device faults.

[Structure]

While accessing the magnetic disk device 7, in case an error occurs, the error frequency is renewed within the error count area 1 by magnetic disk device access means 2. At error frequency checking means 3, error frequency is checked, and the specified error rate is exceeded by magnetic disk device 7, a warning message display request is outputted. At message display means 4, warning message is displayed by this request. And, by the specified key input, warning message is erased whose display is finished.

See figure 1 in the back for the translation of the chart.

[Scope of the patent claims]

[Claim item 1]

Regarding the magnetic disk device fault reporting method in the information processing system which uses a magnetic disk device as the external memory device, said magnetic disk device fault reporting method is characterized as being equipped with an error count area which holds the error frequency generated at the aforementioned magnetic disk device, and the magnetic disk device

access means wherein magnetic disk device access request from external program is executed, and in case an error occurs at the aforementioned magnetic disk device, the error frequency in the aforementioned error count area is renewed; the error count checking means wherein immediately after system startup and before the error detection by the aforementioned magnetic disk device access means, the error frequency in the aforementioned error count area is checked, and in case the aforementioned error frequency exceeds a certain value, a warning message display is requested; the message display means wherein by receiving the warning message display request by the aforementioned error count checking means, a warning message is displayed on the display, then, after aforementioned warning message display, the warning message with display finished is erased by a specified key input;
And the initializing means which initialize aforementioned error count area after aforementioned magnetic disk device exchange.

[Detailed explanation of the invention]

[0001]

[Utilized field in industry]

The present invention relates to a magnetic disk device fault reporting method.

[0002]

[Prior arts]

By the accessing request from the external program, when magnetic

disk device is accessed, in case an error occurs, the internal retry and the like is executed.

[0003]

AS the result of this retry, if the error is not recovered, [error completion] is notified to the external program. On the other hand, in case an error is recovered, [Normal completion] is notified to the external program.

[0004]

[Problems the present invention attempts to solve]

According to the aforementioned traditional method, including the recoverable errors, in the entire magnetic disk device, how many errors have occurred, and accompanied by this, whether exchange time of magnetic disk device is approaching fast or not, can not be evaluated beforehand. Because of this, the defect is that, all of sudden, one can not access the magnetic disk device, thus having the risk of losing important data.

[0005]

[Means to solve the problems]

Regarding the magnetic disk device fault reporting method in the information processing system which uses a magnetic disk device as the external memory device, the first invention is characterized as being equipped with an error count area which holds the error frequency generated at the aforementioned magnetic disk device, and the magnetic disk device access means wherein

magnetic disk device access request from external program is executed, and in case an error occurs at the aforementioned magnetic disk device, the error frequency in the aforementioned error count area is renewed; the error count checking means wherein immediately after system startup and before the error detection by the aforementioned magnetic disk device access means, the error frequency in the aforementioned error count area is checked, and in case the aforementioned error frequency exceeds a certain value, a warning message display is requested; the message display means wherein by receiving the warning message display request by the aforementioned error count checking means, a warning message is displayed on the display, then, after aforementioned warning message display, the warning message with display finished is erased by a specified key input; and the initializing means which initializes aforementioned error count area after aforementioned magnetic disk device exchange.

[0006]

[Embodiment]

Next, the present invention will be explained in details while referring to the diagrams.

[0007]

Figure 1 is a block diagram of one embodiment of the present invention.

[0008]

Regarding magnetic disk device fault reporting method shown in figure 1 is structured by an error count area 1 which holds the error frequency generated at magnetic disk device 7, and magnetic disk device access means 2 wherein the access request to the magnetic disk device 7 from external program 6 is executed, and in case an error occurs at magnetic disk device 7, the error frequency in the error count area 1 is renewed; the error count checking means 3 wherein immediately after system startup and before the error detection by the aforementioned magnetic disk device access means 2, the error frequency in the aforementioned error count area 1 is checked, and in case this error frequency exceeds a certain value, a warning message display is requested to the message display means 4;

the message display means 4 wherein when the warning message display request is generated by aforementioned error frequency checking means 3, a warning message is displayed on the display, then, after aforementioned warning message display, the warning message with display finished is erased by a specified key input;

And the initializing means 5 which initialize aforementioned error count area 1 after exchanging the magnetic disk device 7.

[0009]

Figure 2 is a flow chart showing the magnetic disk device access means 2 in figure 1.

[0010]

As shown in figure 2, processing procedure at magnetic disk device access means consists of an access request occurrence checking step 21, access execution step 22, execution result checking step 23, the step to request for renewing an error frequency and checking an error frequency 24, error retry execution step 25, retry result checking step 26, error completion notification step 27 and normal completion notification step 28.

[0011]

Figure 3 is the flow chart showing the processing of error frequency checking means 3 in figure 1.

[0012] as shown in figure 3, the processing procedure at error frequency checking means 3 consists of the step 31 to check the request occurrence of the error frequency checking, the step 32 to check error frequency, and the step 33 to request the display for a warning message.

[0013]

Figure 4 is a flow chart showing the message display means 4 in figure 1.

[0014]

As shown in figure 4, the processing procedure at message display means 4 consists step 41 to check display request occurrence, step 42 to check display status, step 43 to display the messages, step 44 to check key input, step 45 to check display status, and step 46 to erase messages.

[0015]

Next, the operation of magnetic disk device fault reporting method of said embodiment thus structured will be explained.

[0016]

As shown in figure 2, first of all, magnetic disk device access means 2 checks whether or not the access request from external program 6 to magnetic disk device 7 is generated (Step 21). As a result, if there is no access request, it waits for the access request again. And in case the access request is generated, the processing which complies with the access request is executed for magnetic disk device 7 (step 22).

[0017]

Next, the access execution result is checked (step 23). Here, in case of the normal completion, [normal completion] is notified to the external program (step 28).

[0018]

On the other hand, in case an error occurs here, the error frequency inside of error count area 1 is incremented by 1; furthermore, a request to check the error frequency is made to error frequency checking means (step 24).

[0019]

Next, an error retries or an error replacement processing is executed (step 25), the result is checked (step 26). Here, in case of an error recovery, [normal completion] is notified to the

external program (Step 28). On the other hand, in case an error is not recovered, [error completion] is notified to the external program (step 27).

[0020]

AS shown in figure 3, at error frequency checking means 3, first, whether it is right after a system startup or an error frequency check request from magnetic disk device access means 2 is generated or not checked (step 31). As a result, if there is no request, the processing is completed. On the other hand, in case there is a request, whether or not the error frequency in error count area 1 has arrived at the specified error rate of magnetic disk device 7 is checked (step 32). Here, if it has not arrived at a certain ratio, the processing is completed. And if it exceeds a certain ratio, the display request of the warning message is executed to message display means 4 (step 34).

[0021]

As shown in figure 4, at message display means 4, whether or not there is a warning message display request from error frequency checking means 3 is checked (step 41). As a result, if there is a request, it checks whether or not the warning message is displayed currently (step 42). Here, in case it is not being displayed, the specified warning message is displayed on the display (step 43). On the other hand, in case there is no display request of the warning message at step 41, or there is a display request,

however, in case it is being displayed currently, nothing is done, and it moves to the next processing.

[0022]

Next, it checks whether or not a specified key was input (step 44). Here, in case a specified key was input, it checks whether or not a warning message is being displayed on display (step 45), and if there is, the warning message being displayed is erased (step 46). On the other hand, if there is no input of a specified key, or although a specified key is input, but no warning message is displayed, the processing is completed.

[0023]

Finally, in case the magnetic disk device 7 is exchanged in accordance with the warning message, or due to other factors, the error frequency inside of error count area 1 is initialized by initializing means 5.

[0024]

[Effects of the invention]

As explained above, according to the magnetic disk device fault reporting method of the present invention, regarding the error generated by magnetic disk device, regardless of the recovery capability or non capability, this is counted, and it has the means to check the entire error frequency at each time.

[0025]

By this, the advance diagnosis is enabled which corresponds with

the specified error rate of the magnetic disk device, thus having the effect to prevent the important data loss in advance by the important fault caused by the lifespan of magnetic disk device.

[Simple explanation of the diagrams]

Figure 1 is a block diagram of magnetic disk device fault reporting method of the present invention

Figure 2 is a flow chart showing the processing of the magnetic disk device fault reporting method of this embodiment

Figure 3 is a flow chart showing the processing of error frequency checking means of this embodiment

Figure 4 is a flow chart showing the processing of message display means of this embodiment.

[Explanation of the symbols]

1…. error count area

2… magnetic disk device access means

3...error frequency checking means

4... message display means

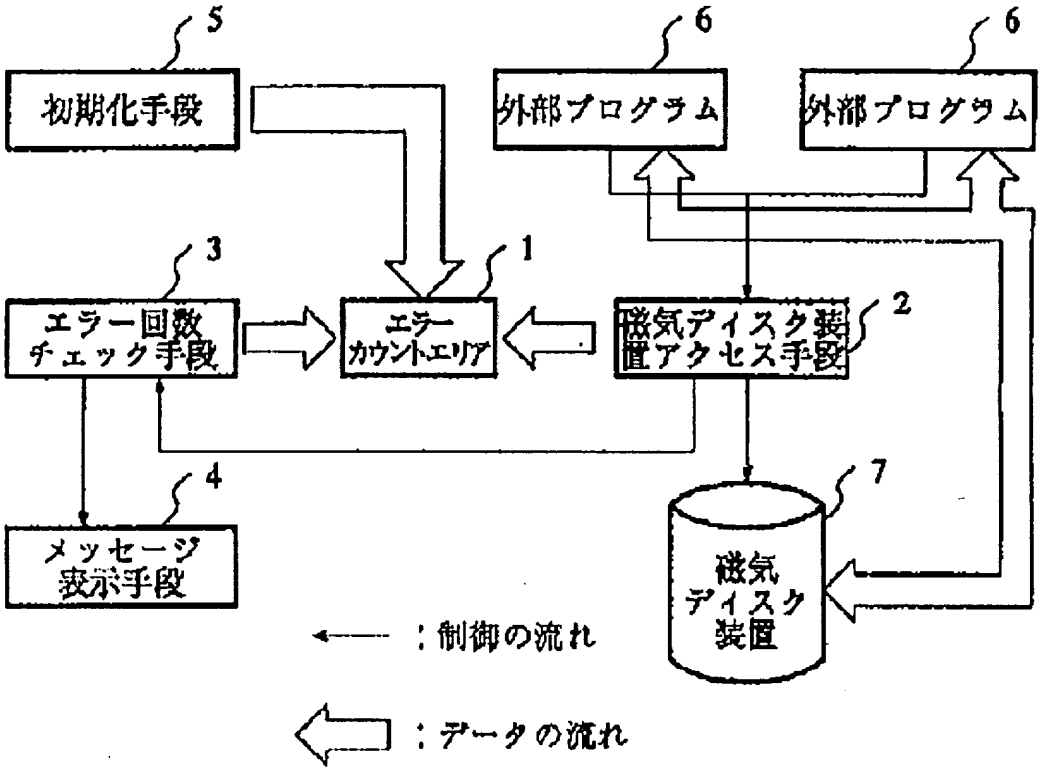
5... initializing means

6... external program

7… magnetic disk device

[Figure 1]

【図1】



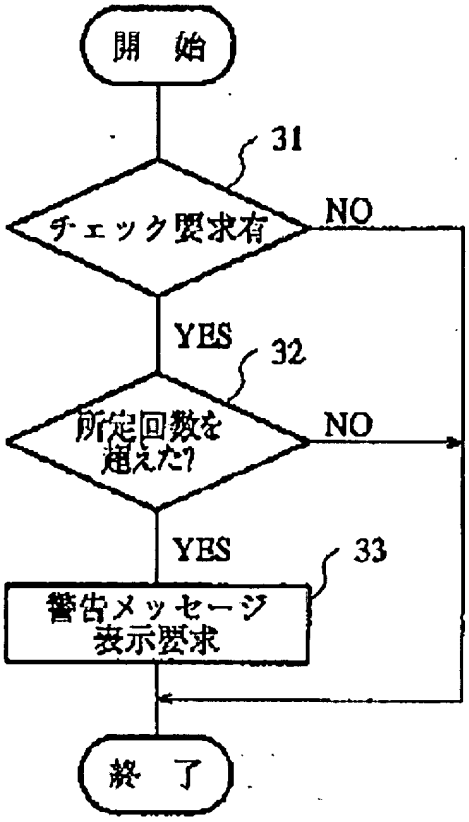
See above

←control flow

A big arrow -- Data flow

[Figure 3]

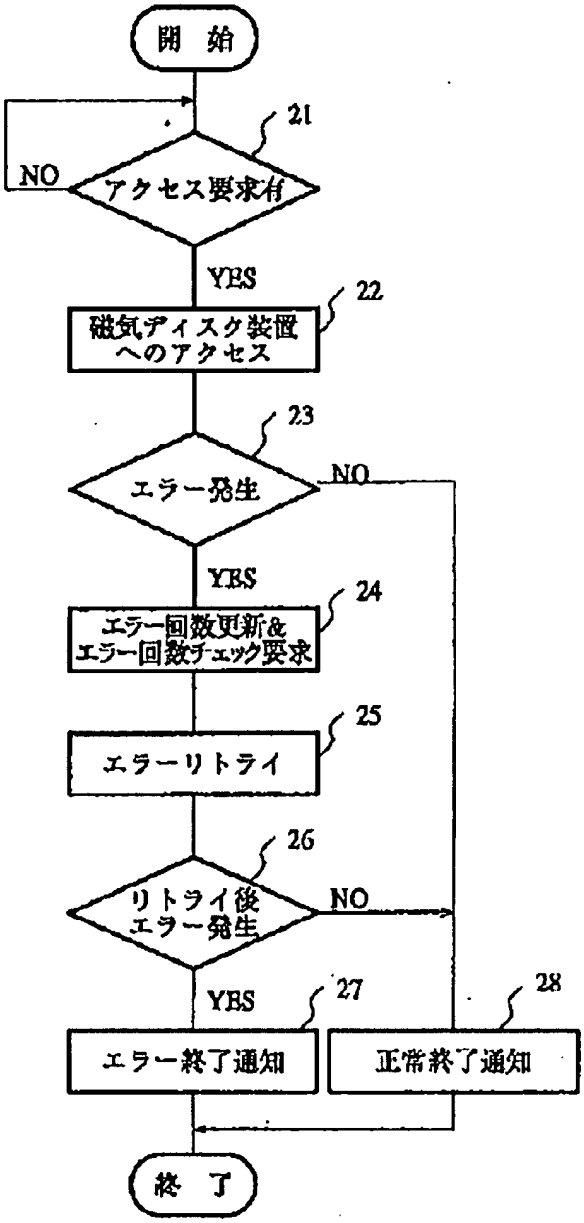
【図3】



Start
31.. there is a checking request
32... Did it exceed the specified frequency?
33.. Display request for a warning message
completed

[Figure 2]

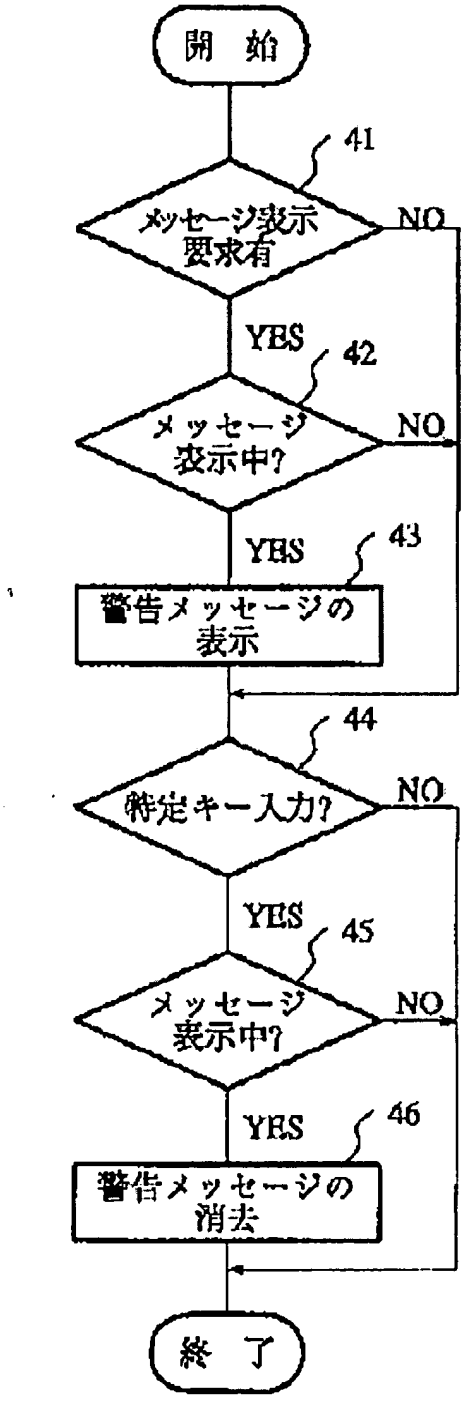
【図2】


開 始
21
NO
アクセス要求有
YES
22
磁気ディスク装置へのアクセス
23
エラー発生
NO
YES
24
エラー回数更新&エラー回数チェック要求
25
エラーリトライ
26
リトライ後エラー発生
NO
YES
27
28
エラー終了通知
正常終了通知
終 了

Start
21..there is an access request
22.. access to magnetic disk device
23.. an error occurred
24.. an request for renewing an error frequency and checking an error frequency
25.. an error retry
26.. an error occurred after a retry
27...an error completion is notified / 28...a normal completion is notified
completed

[Figure 4]

【図4】


開 始
41
メッセージ表示
要求有
NO
YES
42
メッセージ
表示中?
NO
YES
43
警告メッセージの
表示
44
特定キー入力?
NO
YES
45
メッセージ
表示中?
NO
YES
46
警告メッセージの
消去
終 了

Start
41.. a message display is requested
42.. A message is being displayed?
43.. a warning message is displayed
44.. A specified key input?
45.. a message is being displayed
46.. a warning message is erased
completed